stance remaining of the egg adhering to them as a white opaque mass.

74 hrs. the same as the last except the substance on the tentacles has turned brown.

91 " the marginal tentacles were all reflexed except those on one side where they were held by the viscid substance mentioned above.

98 hrs. all the submarginal tentacles, for at least one half the circumference, standing at an angle of 90° with the blade.

137 hrs. the tentacles were nearly all reflexed, and those that were not were simply held back by the remaining substance of the egg.

148 hrs. the leaf was expanded but somewhat stuck together in parts by remains of egg; the leaf seemed almost lifeless; the tentacles were shrunken and with no secretion; however, *the remainder of the plant seemed to be in a more thriving condition than at the opening of the experiment.*

186 hrs. the substance on the leaf had become fibrous; leaf fully expanded; no secretion.

195 hrs. the leaf on one side was so covered with the fibrous substance, mentioned in the last note, as to appear quite dead.

220 hrs. the leaf was apparently rapidly dying.

316 " the leaf was completely dead and covered with a mold.*

An Easily Made Observation.—Several years since I constructed a couple of simple machines for measuring the longitudinal growth of plants which were so effective for work and so easily made withal that it may be well to describe them for the benefit of pupils who may wish to make some experiments. They were essentially the same as the arc indicator described by Sachs in his Text Book. My arc indicators consisted of square pieces of manilla paper tacked to suitable frames; upon these arcs were described and divided into spaces of 5° each. At the centers small pulleys made of perfectly round sections of corks were placed and so arranged as to revolve with the utmost ease. By properly fastening a strip of manilla paper to the large square piece, the cork pulley was easily held in place by a pin passing through the strip and exactly through the center of the cork and the center of the arc, the pin turning in the paper supports, but being fixed in the cork. To the cork a delicate finger made from a straight "splint" of a common corn broom, was attached to serve as an index. A silk thread to be attached to the plant whose growth was to be observed was wound once around the pulley, and to the free end a weight heavy enough to little more than counter-balance the index, was attached.

It took but little longer to make these two instruments than it has taken me to describe them. I immediately put them in place twelve inches or so above a couple of young bean seedlings (*Phaseolus* sp.)

*The same as the mold spoken of in a previous foot-note.

growing in my study window, and for a week watched them and noted results. I made a careful observation four times every twenty four hours, viz: at 8 A. M., 12 M., 4 P. M., and 8 P. M. Indicator No. 1 was attached to a very young internode, while No. 2 was attached to one which had already elongated somewhat. The silk thread was carefully looped under the bases of the leaf stalks at the summits of the internodes, in such a way as not to produce a constriction of the stem. The record was kept in degrees of the arcs, and was transferred to profile paper, the horizontal distance representing time and the vertical the aggregate growth. In this way instructive diagrams were obtained for study and comparison. It was at once evident that the curve of growth for the day was much steeper than that for the night, the percentages ranging from day growth 59.6 and night growth 40.4, to day growth 52.2 and night growth 47.8. These figures can convey scarcely any idea of the constant and marked difference between the day growth and night growth as shown in the curve of growth upon the diagram. By modifying the attachment of the thread, by attaching several instruments to different internodes of the same plant, or by varying the treatment of the plant, as by increasing or decreasing the temperature, or the amount of water supplied to it, the pupil will be able to find out many interesting things about the growth of plants, with a little outlay of time, and none at all of money for apparatus. — C. E. BESSEY, *Ames, Iowa.*

TRICHOSTEMA PARISHI, Vasey. — Shrubby and much branched below, 2–3 feet high, canescently puberulent; leaves sessile, lanceoblong, 1–1½ inches long, tapering to a narrow base, obtuse, sparingly tomentose beneath, with fascicles of linear leaves with revolute margins in the axils; floral leaves 1 inch, gradually reduced to bracts. Thyrsus 6–12 inches long, lower cymules 1–1½ inches apart, closer above, each consisting of 5 to 8 flowers, the peduncles 2 to 4 lines long, pedicels about 2 lines, the purplish wool of calyx scanty compared with *T. lanatum*. Corolla 5–6 lines long, the lower lobe rather longer than the upper, filament 9–12 lines long.

Differs from *T. lanatum* in the shorter and broader leaves, longer and more slender thyrsus, with the cymules more open and much less woolly, the flowers smaller and filaments shorter.

Named for Mr. S. B. Parish, of San Bernardino, Cal., one of the discoverers. Found in San Diego Co., Cal., by *Mr. S. B. Parish* and *G. R. Vasey*. — GEO. VASEY.

BOTANY OF CALIFORNIA, VOL. II, by Sereno Watson. — The authors of this great work are to be congratulated upon its successful completion. The dress is admirable, with fine paper, clear type and broad margins, doing credit even to the famous University Press. The appearance of such a work always makes a stir in botanical circles, for it is a partial record of the progress of systematic botany up to the date of going to press. It is with peculiar satisfaction that we welcome this second volume, for it marks a completed work, and